

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

Rec'd PCT/PTO 23 SEP 2004

REC'D 08 JUL 2004

WIPO

PCT

10/509295



Applicant's or agent's file reference GW-SAR-9299-PCT		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/GB 03/01257	International filing date (day/month/year) 24.03.2003	Priority date (day/month/year) 23.03.2002	
International Patent Classification (IPC) or both national classification and IPC B05D3/04			
Applicant UNIVERSITY OF DURHAM et al.			

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 6 sheets, including this cover sheet.
 - ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

- This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 22.09.2003	Date of completion of this report 07.07.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Bjola, B Telephone No. +49 89 2399-2196 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/GB 03/01257**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*):

Description, Pages

1, 2, 4-24 as originally filed
3 filed with telefax on 24.06.2004

Claims, Numbers

1-28 filed with telefax on 24.06.2004

Drawings, Sheets

1/9-9/9 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-21, 23-25, 28
	No: Claims	22, 26, 27
Inventive step (IS)	Yes: Claims	1-21
	No: Claims	22-28
Industrial applicability (IA)	Yes: Claims	1-28
	No: Claims	-

2. Citations and explanations

see separate sheet

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EXAMINATION REPORT - SEPARATE SHEET**

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- 1.a **US-A-4 898 775 (D1;** see especially col. 3, ln. 3-12), considered as closest prior art, discloses a method for applying a coating to a surface of a substrate, said method comprising the successive steps of:
- a) applying a polymer material to said substrate surface to form at least part of the coating,
 - b) curing said coating, and
 - c) fluorinating the surface of said coating on the substrate.

It has to be noted that the fluorination of a coating is a common procedure and the coated polymer is often cured before the fluorination, so that several other documents of the prior art disclose the above-mentioned features of D1.

According to the present Claim 1, the sequence of the above-mentioned process steps is changed to a-c-b. Therefore, Claims 1-21 steps fulfil the requirements of Art. 33(2) PCT on novelty.

- 1.b The technical problem to be solved by Claim 1 is to provide a method for applying a fluorinated coating to a surface of a substrate, whereby the coating is characterized by an improved repellency. The applicant solved this by employing a process as described by present Claim 1. The characterizing feature of this process over the closest prior art refers to the inversed order of the process step b and c.

Since:

- a) the teaching of the prior art shows that the polymer material is cured before its fluorination, and
 - b) the inversed order of carrying out these two steps could offer certain benefits (like less power required for the plasma source, since the double bonds are not already affected by the curing process) which cannot be characterized as obvious for the skilled specialist,
- an inventive step should be acknowledged for the subject-matters of Claims 1-21 (Art. 33(3) PCT).

- 2.a D1 (see especially col. 3, ln. 3-12) discloses a process for the generation of the coating for a substrate surface by applying a coating to a surface of said substrate, as mentioned under point 1.a.

An apparatus for carrying out this process is considered thus to be inherently

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disclosed. It is obvious for the skilled person that this apparatus has to comprise:

- means for applying a polymer containing unsaturated bonds to form at least the outer surface of the coating,
- curing means for curing said outer surface of said coating, and
- fluorination means for fluorinating the cured outer surface of the coating.

Since there is no reason to assert that

- the curing means of D1 wouldn't be suitable for curing a coated surface which is already fluorinated, or that
- the fluorination means of D1 wouldn't be suitable for fluorinating a coated surface which is uncured,

the subject-matter of Claim 22 should be considered as not novel (Art. 33(2) PCT; see also the PCT International Preliminary Examination Guidelines, III-4.8).

3.b The additional features of Claims 23 and 24 concern the presence of masking means for selective fluorinating and curing the substrate. These additional features appear merely as an association of known devices (see **D2: EP-A-0 834 352** and **D3: US-A-3 544 790**) functioning in their own way and not producing any non-obvious working interrelationship. The subject-matters of Claims 23 and 24 appear therefore as not inventive (Art. 33(3) PCT; see also the PCT International Preliminary Examination Guidelines, IV-B1).

3.c The same applies to Claim 25, additionally characterized by a process feature, since there is no reason to suppose that the apparatus of Claims 23-24 couldn't be operated like indicated in Claim 25.

4.a Claim 26 is formulated like a "product-by-process claim". Its subject-matter could be considered new over the prior art referring to similar products obtained by different methods if the product presently claimed:

- is characterized by an additional product feature, or
- is at least characterized by some properties which are different of those characterizing the similar products of the prior art (especially those obtained by curing before fluorination, like in D1).

Since the present description offers no hint on this, novelty cannot be acknowledged.

4.b This applies also for Claim 27, whose distinguishing feature over Claim 26

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appears to be an implicit one (if a substrate is selectively fluorinated and cured, the portions which are not fluorinated and cured would inherently act as collecting area for liquids).

- 4.c The subject-matter of Claim 28 appears as not inventive, since patterned grafted surfaces of alternating hydrophilicity are known in the prior art (see for example D2).